

II. REMARKS

Claims 1-23 are pending. The Applicants' attorney has amended claims 1, 4, 9, 13-15, and 20-23. In light of the following, all of the claims as amended are now in condition for allowance, and, therefore, the Applicants' attorney requests the Examiner to withdraw all of the outstanding rejections.

Rejection of Claims 1-3, 6-7, 9-10, 13-14, 16, 19, and 23 Under 35 U.S.C. § 102(b) As Being Anticipated By U.S. Patent 5,384,671 to Fisher et al.

As discussed below, the Applicants' attorney disagrees with this rejection.

Claim 1

Claim 1 as amended recites a synchronous partial-response-maximum-likelihood servo channel operable to recover servo data from servo wedges, the servo channel inoperable to recover data from data sectors.

For example, referring, e.g., to FIGS. 5, 13, and 19 and the corresponding written description in the patent application, a servo circuit 30 includes a Viterbi detector 56 that is constructed to recover servo data from servo wedges, but not application data from data sectors. Specifically, the trellis (FIG. 13) according to which the Viterbi detector 56 operates is pruned according to the coding scheme of the servo data. Because the application data is coded differently than the servo data, the Viterbi detector is unable to recover the application data from the data sectors — another Viterbi detector recovers the application data. This allows the servo data and application data to have different spectrums (e.g., PR4) and significantly different coding schemes because each Viterbi detector can be pruned and otherwise customized for the respective data (servo or application) that it recovers.

In contrast, referring, e.g., to FIG. 4, col. 2, lines 48-51, and col. 13, line 48 – col. 14, line 10, Fisher discloses a single Viterbi detector 50 that recovers both servo data from servo wedges and application data from data sectors. That is, the servo data has the same spectrum (e.g., PR4) and a similar coding scheme as the application data such that a single Viterbi detector 50 can be used to recover both the servo data and the application data.

Claims 2-3 and 6-7

These claims are patentable by virtue of their dependencies on claim 1.

Claim 9

Claim 9 as amended recites a processor operable to detect one of the servo wedges during or after a disk spin-up search operation without first detecting a spin-up wedge.

For example, referring, *e.g.*, to FIGS. 4-8 and the corresponding text of the patent application, a servo circuit 30 (FIG. 5) can detect and recover servo data from a servo wedge on spin up of a disk without first detecting a spin-up wedge (*i.e.*, a DC-erase field). The circuit 30 does this by asynchronously detecting the preamble of a servo wedge as described on pp. 11-14. This allows one to eliminate the spin-up wedges from the disk, thus allowing more space to store application data.

In contrast, referring, *e.g.*, to FIG. 2A and col. 6, line 60 – col. 7 line 48, Fisher's circuit 10 (FIG. 4) must first detect an asynchronous servo address mark 124 on initialization (*i.e.*, spin up) of the disk before the circuit can detect and recover servo data from a servo wedge.

Claim 10

This claim is patentable by virtue of its dependency on claim 1.

Claim 13

Claim 13 as amended recites a read channel including a first Viterbi detector operable to recover application data from data sectors, and including a second Viterbi detector operable to recover servo data from servo wedges, the second Viterbi detector different than the first Viterbi detector.

For example, referring, *e.g.*, to FIGS. 5, 13, and 19 and the corresponding written description in the patent application, and as discussed above in support of the patentability of claim 1, a servo circuit 30 includes a Viterbi detector 56 that is constructed to recover servo data from servo wedges, but not application data from data sectors. Another, different Viterbi detector recovers the application data.

In contrast, referring, e.g., to FIG. 4, col. 2, lines 48-51, and col. 13, line 48 – col. 14, line 10, Fisher discloses a single Viterbi detector 50 that recovers both servo data from servo wedges and application data from data sectors. That is, Fisher does not disclose separate, different Viterbi detectors for respectively recovering servo data and application data.

Claim 14

Claim 14 as amended recites synchronously recovering servo data from servo sectors with a first partial-response-maximum-likelihood-detection algorithm, and synchronously recovering application data from data sectors with a second partial-response-maximum-likelihood-detection algorithm that is different than the first algorithm.

For example, referring, e.g., to FIGS. 5, 13, and 19 and the corresponding written description in the patent application, and as discussed above in support of the patentability of claims 1, a servo circuit 30 includes a Viterbi detector 56 that is constructed to recover servo data from servo wedges, but not application data from data sectors. Another, different Viterbi detector recovers the application data. That is, each of these Viterbi detectors implements a different partial-response-maximum-likelihood-detection algorithm.

In contrast, referring, e.g., to FIG. 4, col. 2, lines 48-51, and col. 13, line 48 – col. 14, line 10, Fisher discloses a single Viterbi detector 50, and thus a single partial-response-maximum-likelihood-detection algorithm, for recovering both servo data from servo wedges and application data from data sectors. That is, Fisher does not disclose separate, different partial-response-maximum-likelihood-detection algorithms for respectively recovering servo data and application data.

Claims 16, 19, and 23

These claims are patentable by virtue of their dependencies on claim 14.

Rejection of Claims 4-5, 8, 11, 17-18, and 20-22 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Fisher in View of U.S. Patent 6,108,151 to Tuttle et al.

As discussed below, the Applicants' attorney disagrees with this rejection.

Claims 4-5, 8, and 11

These claims are patentable by virtue of their dependencies on claim 1.

Claims 17-18 and 20-21

These claims are patentable by virtue of their dependencies on claim 14.

Claim 22

Claim 22 as amended recites detecting a servo sector while or after a disk rotates from a first to a steady-state speed without first detecting a spin-up wedge.

For example, as discussed above in support of the patentability of claim 9 and referring, *e.g.*, to FIGS. 4-8 and the corresponding text of the patent application, a servo circuit 30 (FIG. 5) can detect and recover servo data from a servo wedge on spin up of a disk from a first speed (typically 0 rpm) to a steady-state speed (*e.g.*, 5400 rpm) without first detecting a spin-up wedge (*i.e.*, a DC-erase field). The circuit 30 does this by asynchronously detecting the preamble of a servo wedge as described on pp. 11-14. This allows one to eliminate the spin-up wedges from the disk, thus allowing more space to store application data.

In contrast, referring, *e.g.*, to FIG. 2A and col. 6, line 60 – col. 7 line 48, Fisher's circuit 10 (FIG. 4) must first detect an asynchronous servo address mark 124 on initialization (*i.e.*, spin up) of the disk before the circuit can detect and recover servo data from a servo sector (wedge).

Similarly, referring, *e.g.*, to col. 15, lines 13-63, Tuttle's circuitry also must first asynchronously detect a servo address mark (*i.e.*, spin-up wedge) "normally comprised of a long sequence of '0' bits" on spin up of a disk before the circuitry can detect and recover servo data from a servo sector.

Therefore, Tuttle lacks the teaching missing from Fisher, namely detecting a servo sector while or after a disk rotates from a first to a steady-state speed without first detecting a spin-up wedge.

Rejection of Claim 12 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Fisher In View Of U.S. Patent 5,818,655 To Satoh et al.

As discussed below, the Applicants' attorney disagrees with this rejection.

Claim 12

This claim is patentable by virtue of its dependency on claim 1.

**Rejection of Claim 15 Under 35 U.S.C. § 103(a) As Being Unpatentable Over
Fisher In View Of U.S. Patent 6,032,284 To Bliss**

As discussed below, the Applicants' attorney disagrees with this rejection.

Claim 15

This claim is patentable by virtue of its dependency on claim 14.

Conclusion

In light of the foregoing, claims 2-8, 10-12, and 16-19 as previously pending and claims 1, 4, 9, 13-15, and 20-23 as amended are in condition for full allowance, which is respectfully requested.

In the event additional fees are due as a result of this amendment, payment for those fees has been enclosed in the form of a check. Should further payment be required to cover such fees you are hereby authorized to charge such payment to Deposit Account No. 07-1897.

DATED this 15th day of December, 2003.

Respectfully Submitted,



Bryan A. Santarelli
Attorney for Applicant
Registration No. 37,560
155 – 108th Ave. NE, Suite 350
Bellevue, WA 98004-5973
(425) 455-5575